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PHENOMENA BEAUTIFUL.

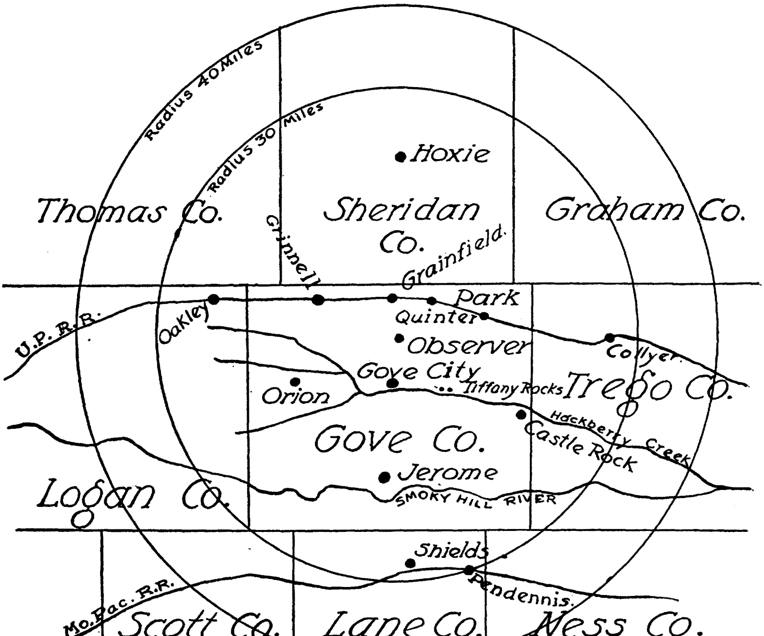
By W. A. Cook, Baker University, Baldwin, Kan.

THE human eye, one of the most valuable of our members, is one of the easiest to deceive of our sense organs. Looking through a screen door, the plane of which is at right angles to the line of vision, the rising moon seems to send its rays in straight lines forming a Greek Cross, the arms running parallel to the wires in the screen. Turn the screen to an angle of forty-five degrees and the horizontal bar of the cross divides into two bars making an angle of from forty-five to sixty degrees with each other, depending on the mesh of the screen. The rays of light coming through the screen between the arms of the cross are deflected until they do not reach the eye, hence only those coming through in straight lines are seen.

The mirage, which may well be termed "Phenomena Wonderful," is one of the greatest illusions the eye beholds. The sights and scenes depicted in the old poem of "Seeing Things at Night" do not approach the wonderfulness of the mirage. But the mirage has another quality, that of beauty, and the more appropriate name would be "Phenomena Beautiful." So leaving out the physical principles involved in the mirage, which are familiar to all, the writer will present with the use of charts some illustrations that it has been his privilege to see, and which will warrant the name "Phenomena Beautiful."

Traveling westward from Salina, along the Smoky Hill river, an observer may see the most wonderful and most beautiful shifting scenery. Hills suddenly rise out of the midst of the blue of beautiful lakes, to shiver and smoke like active volcanoes for a few minutes and then as suddenly sink back into the lake, or being torn into fragments gradually vanish away into nothingness. The beautiful lakes themselves are ever just a little beyond, settling in among the hills or spreading away to limitless distances over the prairie. Around the borders of these lakes familiar objects appear near at hand, as if by magic, or assume grotesque shapes as they come and go in the kaleidoscopic view. Hence the name Smoky Hill river.

Imagine yourself traveling over the level prairie where sight travels for twenty or thirty miles unobstructed, and see three miles before you a herd of cattle stringing across the prairie at right angles to your road. Then suddenly find yourself on the shore of one of those beautiful shimmering lakes. While you are viewing with wonder the beauty spread before you, you soon have it spoiled by the grotesque, for the cattle coming up to the edge of the lake find legs fifty feet long on which they wade out into the lake and disappear. Travel a mile farther and you again come in sight of the cattle wending their way across the prairie on their ordinary short legs and none the worse for having passed through the magic waters in their "Seven League Boots." Such scenes are very common where the buffalo grass causes the unequal heating of the atmosphere so that you look, not straight ahead, but along rays of light that lead upward into the smoky blue of the atmosphere, and the objects which chance to be on the margin of



this illusion struggle to maintain their proper shapes, with results both fascinating and ridiculous.

The mirage does not belong to any particular season of the year. On New Year's morning in 1896 the writer stood on the north slope of Hackberry creek in Gove county, and looked over a bluff more than one hundred feet high on the south side of the creek, and saw distinctly a train of cars on the Missouri Pacific railroad fully thirty miles to the south. Not only did the train stand out clear and plain, but above it, with wheels upward and the smoke of the two merging, was another; and immediately above this one, with wheels against wheels, was the third train. This view lasted for about three minutes in fairly perfect form. There was a coat of sleet and ice on the ground at the time, and as the sun's rays struck the ice they were reflected back into the air, super-heating a layer some distance from the ground, thus the three layers of atmosphere produced the extraordinary view.

In April of 1891, and again in the morning, I viewed the most extensive mirage I have ever seen. This mirage was of especial clearness and of about seven minutes' duration in all directions, and lingering as long as fifteen minutes in some directions. I saw this mirage from the prairie about half way between Gove City and Grainfield, from a point where ordinarily none of the points to be mentioned were visible. On the Union Pacific railroad I saw Collyer, Quinter, Park, Grainfield, Grinnell and Oakley; to the north of these Hoxie was in view; toward the south I could see Gove City, Tiffany Rocks, Castle Rock, Orion, Jerome, Shields, and Pendennis. I had the feeling of standing in the bottom of a huge basin and looking outward and upward to where the various places were located. My range of vision was fully thirty miles to the north and about forty miles to the south. Toward the southwest was the only place where the view was not clear, and in this direction the hills of the Smoky Hill river were blurred with haze.

One of the most beautiful of these phenomena was observed in October of 1892. This, however, was observed at night and was different, although involving the same principles as the mirage. The moon was nearly full and nearly overhead. Around the moon was a very clear primary halo or ring, and outside a well-defined secondary ring. There was a second primary ring one edge of which passed through the moon and the other through the secondary ring. There was also a mere trace of another secondary ring around this second primary ring. This extraordinary occurrence was seen by many people, and some of the more superstitious thought it a portent of some dire calamity. It was only another manifestation of the "Phenomena Beautiful," showing that the physical laws governing light were applicable at night as well as in the day.

As stated in the beginning, the writer has not attempted to discuss the physical laws governing these phenomena, but has presented only a few of the extraordinary illustrations of the mirage seen in a twenty-year residence in the midst of the magic scenery of the Smoky Hill country of western Kansas.